## Amendments to the Claims:

1 (Currently amended) A partially depleted SOI MOS device comprising:

a well of first conductivity type isolated in a thin film body of an SOI substrate, said SOI substrate comprising said thin film body, a support substrate and a buried oxide layer interposed between said thin film body and said support substrate;

a gate dielectric layer on a surface of said well;

a polysilicon gate on said gate dielectric layer, said polysilicon gate consisting of a first gate section of first conductivity type overlapping and capacitively coupling with an extended well region of said well and a second gate section of second conductivity type lying across said well, whereby a tunneling connection is formed between said first gate section and said extended well region of said well, wherein said polysilicon gate is not electrically connected to said well or said extended well region; and

source and drain regions of second conductivity type on opposite sides of said second gate section.

2 (Original) The partially depleted SOI MOS device according to claim 1 wherein said gate dielectric layer is selected from the group consisting of silicon dioxide, nitrogen contained silicon dioxide, oxynitride, and Al, Zr, La, Ta, or Hf contained high K dielectric layer.

3 (Original) The partially depleted SOI MOS device according to claim 1 wherein said dielectric layer has a thickness of between about 5~120 angstroms.

4 (Original) The partially depleted SOI MOS device according to claim 1 wherein said thin film body is a silicon layer.

5 (Original) The partially depleted SOI MOS device according to claim 1 wherein said first conductivity type is N type, and said second conductivity type is P type.

6 (Original) The partially depleted SOI MOS device according to claim 1 wherein said first conductivity type is P type, and said second conductivity type is N type.

7 (Currently amended) A partially depleted SOI MOS device comprising:

a silicon wafer having a thin film body, a supporting substrate, and a buried oxide layer isolating said thin film body from said supporting substrate, said thin film body having a main surface;

oxide filled trenches that extend downwards from said main surface as far as said buried layer, said trenches being disposed so as to fully enclose a volume of said thin film body, thereby forming a well on said main surface;

a gate dielectric layer on said main surface;

a polysilicon gate of first conductivity type on said gate dielectric layer, said polysilicon gate having two opposing long sides that extend from a first end of said polysilicon gate over a first oxide filled trench across said well to a second end of said polysilicon gate over a second oxide filled trench, wherein a portion of one of said ends of said polysilicon gate is implanted with ions of second conductivity type opposite to said first conductivity type, whereby a tunneling connection is formed between said well and said implanted portion of said polysilicon gate, and wherein said polysilicon gate is not electrically connected to said well; and

source and drain regions of first conductivity type on opposite sides of said polysilicon gate, whereby during operation, a channel electrical field near said drain region is reduced.

8 (Original) The partially depleted SOI MOS device according to claim 7 wherein said dielectric layer is selected from the group consisting of silicon dioxide, nitrogen

contained silicon dioxide, oxynitride, and Al, Zr, La, Ta, or Hf contained high K dielectric layer.

9 (Original) The partially depleted SOI MOS device according to claim 7 wherein said dielectric layer has a thickness of between about 5~120 angstroms.

10 (Original) The partially depleted SOI MOS device according to claim 7 wherein said thin film body is a silicon layer.

11 (Original) The partially depleted SOI MOS device according to claim 7 wherein said first conductivity type is P type, and said second conductivity type is N type.

12 (Original) The partially depleted SOI MOS device according to claim 7 wherein said first conductivity type is N type, and said second conductivity type is P type.